

PROVINCE OF BRITISH COLUMBIA

Department of Agriculture

LIVE STOCK BRANCH

BULLETIN NO. 32

**Control of Bovine Tuberculosis
in British Columbia**

— BY —

M. A. JULL, A. KNIGHT and H. H. S. GEORGE



VICTORIA, B. C.

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PROVINCE OF BRITISH COLUMBIA

DEPARTMENT OF AGRICULTURE

LIVE STOCK BRANCH

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LETTER OF TRANSMITTAL

Victoria, B.C., March, 1911.

HON. PRICE ELLISON,
Minister of Agriculture.

Sir,—

I have the honour to transmit herewith treatise compiled by M. A. Jull, Live Stock Commissioner, Dr. A. Knight and Dr. H. H. S. George, Provincial Veterinary Inspectors, dealing with present conditions of Bovine Tuberculosis in the Province and the steps which are being taken towards its control and eradication.

I have the honour to be,

Sir,

Your obedient servant,

WM. E. SCOTT,

Deputy Minister of Agriculture.



FIG. 1. TUBERCULOSIS (Cow (emaciated))
Pharyngeal glands greatly enlarged making respiration difficult. Lungs only slightly affected.

INTRODUCTION

For some time past the need has been felt for information concerning the formulation and enforcement of regulations dealing with the control of bovine tuberculosis. For several years the Department has been engaged in a policy of combating the disease, which has in itself accomplished much towards its suppression, but the time has come when a more definite and systematic policy should be adopted if the disease is to be eradicated from the Province and if herds free from the disease are to be maintained. This bulletin has been prepared with the hope that its distribution among the public will create a more wide-spread interest in the subject and will be the means of enlisting the co-operation of the public in a common endeavour to secure control of bovine tuberculosis in British Columbia.

The Report of the International Commission on the Control of Bovine Tuberculosis is included in Part I. of this bulletin, through the kind permission of Dr. J. G. Rutherford, Veterinary Director General and Live Stock Commissioner of Canada. This Report contains many important facts concerning the disease, alludes to the necessity for education and legislation, and recommends and outlines definite plans for its control.

There is also included in Part I. the address of Dr. J. G. Rutherford delivered before a meeting of the British Columbia Dairymen's and Stock Breeders' Associations, this meeting having been arranged through Dr. S. F. Tolmie, British Columbia Representative Dominion Live Stock Commissioner.

In Part II. will be found a report of the work of the Government in connection with the control of bovine tuberculosis in British Columbia, compiled in the main by Dr. A. Knight, Chief Veterinary Inspector, and Dr. H. H. S. George, Veterinary Inspector. A copy of the "Contagious Diseases (Animals) Act," Chapter 48, Revised Statutes, 1897, as amended, Chapter 12, 1911, is also included.

M. A. JULL,
Live Stock Commissioner.



FIG. 2. Pharyngeal gland, weighing about 5 lbs., taken from cow in Fig. 1. These small glands are at base of tongue and often can be considerably enlarged without being visible externally.

PART I.

1. Report of the International Commission

ON

The Control of Bovine Tuberculosis

2. Address--Bovine Tuberculosis

DR. J. G. RUTHERFORD,

Veterinary Director-General and Dominion Live Stock Commissioner

MEMBERS
OF THE
INTERNATIONAL COMMISSION
ON THE
CONTROL OF BOVINE TUBERCULOSIS

SENATOR W. C. EDWARDS.....Ottawa, C
MR. J. J. FERGUSON.....Chicago
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MR. T. W. TOMLINSON.....Denver
DR. F. TORRANCE.....Winnipeg, C
DR. J. G. RUTHERFORD.....Ottawa, Canada, Ch

MEETINGS.

First meeting, Buffalo, N.Y., December 13 & 14, 1909.
Second meeting, Detroit, Mich., March 1 & 2, 1910.
Third meeting, Ottawa, Canada, May 19, 20 & 21, 1910.
Fourth meeting, Madison, Wis., June 27 & 28, 1910.

REPORT OF THE INTERNATIONAL COMMISSION ON THE CONTROL OF BOVINE TUBERCULOSIS

To the President of the American Veterinary Medical Association:

Owing to the great economic and sanitary significance of animal tuberculosis to the live stock industry of America, and the many and varied factors which must of necessity be taken into account in formulating successful measures for its eradication, the American Veterinary Medical Association, at its meeting in Chicago in September, 1900, appointed the International Commission on the Control of Bovine Tuberculosis. The Commission was instructed to study the problem of tuberculosis among cattle and to report at the next meeting of the Association upon reasonable and economically practicable methods or systems to be recommended to both officials and live stock owners, for eradicating this great scourge of domesticated animals.

It is recognized that tuberculosis is widely prevalent among cattle and other animals and that the frequency with which this great evil occurs is increasing rather than declining. As tuberculosis is one of the strictly preventable infections, there is good ground for the belief that through the formulation and enforcement of proper regulations the disease may eventually be entirely suppressed.

The Commission has held four meetings as follows:—Buffalo, N.Y., December 13th and 14th, 1900; Detroit, Mich., March 1st and 2nd, 1910; Ottawa, Canada, May 10th, 20th and 21st, 1910; Madison, Wis., June 27th and 28th, 1910, all of which were well attended, very few of the members having, on any occasion, been absent. The Commission begs to present as a result of its labours the following report which, although brief, will, on examination, be found to comprise the principal points essential to the promulgation of a comprehensive and practical policy, such as may reasonably be adopted by any governmental body interested in the control of bovine tuberculosis.

It is quite unnecessary, in view of the extensive knowledge already possessed by all familiar with the efforts which have hitherto been made to secure control of bovine tuberculosis, to dwell at any length upon the importance of the subject or upon the conditions which led to the formation of the Commission.

In view of the personnel of the Commission as selected by the American Veterinary Medical Association, and of the fact that so much information on the subject has been made available through the work of similar bodies in other countries, and the researches of scientific and practical men in America and elsewhere, the Commission has not deemed it necessary to take any evidence either from expert witnesses or others. The members fully understood that the purpose which their appointment

was intended to serve was less the acquisition of new knowledge regarding bovine tuberculosis, than the careful study of the knowledge already available, and of the thoughts and opinions of those most entitled to speak with authority on the subject. The conclusions reached in this report were therefore, simply the outcome of an earnest and thoughtful consideration of the various modern aspects and phases of the problem, with the object of crystallizing public opinion and so clearing the way for legislative action. They realized also that they could deal with fundamental principles only, and that the details of any policy which they might outline must, in each case, be worked out by the duly authorized and responsible representatives of the community immediately concerned. They never less deemed it essential to study closely the history of the various efforts hitherto made by such countries throughout the world as have attempted to legislate on the subject. This naturally led to the gradual elimination of all methods other than such as might reasonably be adopted by any community desiring, in the full light of present day knowledge, to undertake the control of bovine tuberculosis.

It was felt, in view of the prevalence of the disease, especially in certain localities and among certain classes of cattle, the difficulty of providing a sufficient number of trained officials and the large economic question involved, to say nothing of the enormous expenditure, that it would be unwise, for the present at least, to seriously discuss a policy of universal compulsory testing and slaughter. Such a policy might perhaps be adopted with advantage by a small community, or one in which the disease existed to a very limited extent, but speaking generally, especially in view of past experiences in this line, it was thought better to omit it entirely from the recommendations of the Commission.

All other methods of dealing with bovine tuberculosis which have been recommended or tried in various communities, were thoroughly discussed, with the object of discarding weak points and adopting features as might be deemed worthy of a place in the official findings of the Commission. Every phase of the subject was in this way fully and freely considered, it being thought best to cover the whole ground as completely as possible before coming to a definite decision on any point.

In order to still further minimize the risk of omitting from the deliberations of the Commission any phase of the question, four committees were appointed at the first meeting to deal respectively with:—

- (1) Education and legislation,
- (2) Location of tuberculosis,
- (3) Dissemination,
- (4) Disposition of tuberculous animals.

The appointment of these committees proved to be of the greatest possible value in concentrating the energies of the various members on those branches of the subject with which they were most familiar. Their reports presented at subsequent meetings enabled the Commission to reach satisfactory conclusions much more rapidly than would otherwise have been the case.

As a means of furnishing information as to the reasons for these conclusions and the manner in which they were reached, the Commission would recommend that the reports of the committees should be published as an appendix to this report.

The Commission recognizing after careful study that the tuberculin test is the fundamental factor in any policy having for its object the control of bovine tuberculosis, decided that a pronouncement to that effect should properly occupy a foremost place.

RESOLUTIONS

Based on the information contained in the reports of its committees and on such other information as was brought out in the general discussions of the Commission, the following resolutions were adopted for presentation to the American Veterinary Medical Association:

1. Dissemination.—As a general policy to be observed, all contact between tuberculous and healthy cattle and between healthy cattle and stables, cars, etc., which may contain living tubercle bacilli, should be prevented. To accomplish this the following specific recommendations are made:

(1) There should be no sale or exchange of animals affected with tuberculosis except for immediate slaughter or for breeding purposes under official supervision.

(2) That the managements of live stock shows should give preference to cattle known to be free from tuberculosis, either by providing special classes for such cattle or in some other practical way, and should also take every precaution to prevent contact between such animals and those not known to be free from disease.

(3) All live stock shippers should take every precaution to see that cars furnished are thoroughly cleansed and disinfected before use.

2. Tuberculin Test.—(1) That tuberculin, properly used, is an accurate and reliable diagnostic agent for the detection of active tuberculosis.

(2) That tuberculin may not produce a reaction under the following conditions:—

- (a) When the disease is in a period of incubation
- (b) When the progress of the disease is arrested
- (c) When the disease is extensively generalized

The last condition is relatively rare and may usually be detected by physical examination.

(3) On account of the period of incubation and the fact that arrested cases may sooner or later become active, all exposed animals should be retested at intervals of six months to one year.

(4) That the tuberculin test should not be applied to any animal having a temperature higher than normal.

(5) That any animal having given one distinct reaction to tuberculin should thereafter be regarded as tuberculous.

(6) That the sub-cutaneous injection of tuberculin is the only method of using tuberculin for the detection of tuberculosis in cattle which can be recommended at the present time.

(7) That tuberculin has no injurious effect on healthy cattle.

3. Evidence from Tuberculin Test.—That a positive reaction to tuberculin in any properly conducted test, official or otherwise, in any animal in any herd, shall be considered evidence sufficient upon which to declare the herd to be infected.

4. Compulsory Notification.—That this Commission recommends the passage of legislation providing for the compulsory notification by owners and by veterinarians of the existence of tuberculosis in a herd, when such existence be made known by detection of clinical cases or by tuberculin test.

5. Location through Slaughter.—This Commission recognizes the discovery of tuberculosis in animals slaughtered for food purposes as one of the best possible means of locating the disease on the farm, and therefore recommends the adoption of some system of marking, for purposes of identification, all cattle three years old and over, shipped for slaughter.

As tuberculosis of hogs is almost invariably due to buying stock, this recommendation should also be made to apply to hogs of any age shipped for slaughter.

It is further recommended that the discovery of tuberculosis in animals coming under Government inspection should be used where identification is possible, as a means of locating infected herds and tracing them. All such cases should be reported to the proper authorities for further action.

6. Disposition of Tuberculous Animals—The Commission Plan.—As a general policy in the eradication of tuberculosis the separation of healthy and diseased animals, and the construction of a healthy herd is recommended.

In order to accomplish this, the following recommendations are made:

(a) If the herd is found to be extensively infected, as shown by the tuberculin test or clinical examination, even the apparently healthy animals in it should be regarded with suspicion, until they have been separated from the reacting animals for at least three months.

If, after the expiration of this time, they do not react to the tuberculin test, they may be considered healthy and dealt with accordingly.

It is recommended that a herd extensively infected should be treated by the method of general separation, but that the construction of a new herd from the off-spring only is advisable.

(b) If the herd is found, by either or both of the above methods, to contain a relatively small proportion of diseased animals, separate the diseased animals from the healthy animals, and the construction of a sound herd from the healthy animals, and the off-spring of both, is advocated.

As a working basis in carrying out these principles, we advise

(a) That herds containing 50 per cent. or more of diseased animals be treated as coming under Section 1.

(b) That herds containing under 15 per cent. of diseased animals be treated as coming under Section 2.

(c) That herds falling between these figures be graded according to the option of the owner.

(d) That it shall be the prerogative of the owner to reject either plan and have his herd dealt with by removal and slaughter of diseased animals, with or without compensation, according to the public policy in operation.

(2) That when by any means the officials properly charged with the control of tuberculosis become aware of its existence in a herd to which a policy of slaughter and compensation cannot reasonably be applied, such herd must be dealt with by the owner, under Government supervision, on the principle of the separation of all sound animals from those affected. Such separation must be effected by treating the whole herd as diseased, and rearing the calves separately, either on pasteurized milk or the milk of healthy cows, or when the number of those affected is so small as to warrant such a course, by the application to the whole herd, from time to time, under official supervision, of the tuberculin test, and the entire segregation of all animals found to react.

In the event of any owner refusing or neglecting to adopt either of the above methods, his entire herd to be closely quarantined, and sales therefrom to be entirely prohibited.

(3) That a policy of compensation be recommended as useful and usually necessary as a temporary measure.

(4) That, when slaughter is necessary, in order to avoid economic loss, every effort should be made to utilize as far as possible the meat of such animals as may be found fit for food on being slaughtered under competent inspection.

(5) The details of the Commission Plan will be found fully set forth in the Appendix to this report.

7. Prevention.—(1) That, with the object of preventing the spread of infection, persons buying cattle for breeding purposes or milk production should, except when such purchases are made from disease free herds, which have been tested by a properly qualified person, purchase only subject to the tuberculin test. In order to assist in the proper carrying out of this suggestion, the Commission recommends that official authorities should adopt such regulations as will prevent the entry to their respective territories of cattle for breeding purposes or milk production unless accompanied by satisfactory tuberculin test charts.

(2) That all milk and milk by-products used as food should be properly pasteurized unless derived from cows known to be free from tuberculosis.

8. Control of Tuberculin Test.—That the Commission recommends the passage of legislation which will prevent the sale, distribution or use of tuberculin by any persons other than those acting with the full knowledge, or under the direction, of official authorities.

9. Education.—As a clear knowledge of the cause and character of tuberculosis among animals, the modes of dissemination and its significance as an economic and as a public health problem, underlie an intelligent adherence to the principles that must be observed in all efforts at eradication, as well as the establishment of proper co-operation in the great work between physicians, veterinarians, livestock owners, legislators and the public generally, it is recommended that a widespread campaign of education be undertaken. To accomplish this end it is recommended first of all, a simple pamphlet on bovine tuberculosis be written, in the language used shall be of such character that every person of average intelligence shall be able to read it without being mystified by technical terms or phrases. This pamphlet should be published with the endorsement of the American Veterinary Association and the special endorsement and consequent authority of the International Commission on Bovine Tuberculosis Control.

10. Publicity.—In concluding its work the Commission desires to make especially appeal to the press, metropolitan, agricultural and local, to assist in the work of extending as much as possible among the people the conclusions here arrived at. The vital importance of the life of farm animals to the welfare of all classes of society needs no argument in its support. The aim and sole purpose which has actuated this Commission has been to arrive at the soundest conclusions possible in the light of the knowledge obtainable.

11. Legislation.—It is recommended that legislation regarding the control and eradication of tuberculosis among domestic animals be made uniform; that the laws of the United States and Canada and of the American countries for the admission into America of animals from without be made stringent and as much alike as possible; and that the laws governing the inter-state and inter-provincial movement of cattle and other animals between different American countries be harmonized.

The laws governing inter-state and inter-provincial movement of animals should be of such character that every state and every province will be enabled to carry on its eradication work from unnecessary difficulties due to the existence of the disease in other states and provinces.

Legislation is especially required to prevent the various frauds which may interfere with the satisfactory use of tuberculin as a diagnostic agent in tuberculosis, as well as for official supervision over all tuberculin sold and to be used by veterinarians and others.

12. Sanitation.—In the eradication of tuberculosis it should be kept in mind that, in addition to protecting animals against exposure to tubercle bacilli, it is desirable to make them as resistant to infection as possible. This can be done by stabling them in clean, disinfected and properly lighted and ventilated barns, giving them abundant clean water and nutritious food, a sufficient amount of daily exercise in the open air, and attending generally to those conditions which are well known to contribute to the health of animals.

The daily removal of manure from stables, and water tight floors and good drainage in stables are urgently recommended.

Young stock particularly should be raised as hardy as possible and should be accustomed to liberal exercise and living in the open.

13. Immunization.—That as none of the various methods for the immunization of animals against tuberculosis have passed sufficiently beyond the experimental stage, the Commission is unable to endorse any of these for practical use at the present time.

14. Animal Tuberculosis and Public Health.—While the members recognize that the subject with which this Commission is primarily intended to deal is the control and eradication of tuberculosis among animals as an economic problem, they cannot feel satisfied without declaring their recognition of the fact that tuberculosis among animals is also an important public health problem. Considered as such, the eradication of tuberculosis among animals should have the approval and support of all those persons who are interested in curtailing human suffering and prolonging human life.

15. General Statement.—The members of the Commission wish it to be clearly understood that they recognize the limitations of a report necessarily based on actual and not on theoretical conditions. They fully realize that in the event of the policy of which their recommendations form the framework, being anywhere adopted even in its entirety, much greater benefit will be derived, at least for some time, from its educative than from its executive features.

The control, to say nothing of the eradication, of bovine tuberculosis, is impossible of achievement, without the hearty co-operation of the men who are actually engaged in the cattle industry. In order to secure this co-operation, it will doubtless be necessary, in most communities, to carry on an active and prolonged educational campaign.

It is apparent that in the dissemination of practical and reliable information regarding the disease, it will be possible to employ a very large variety of methods. Many of these methods, such as bulletins, lectures and actual demonstrations of disease, having already been found valuable, will doubtless continue to be largely used.

It must not be forgotten, however, that in this, as in any other educative process, a measure of disciplinary control is essential to success. Needless to say such control can be secured only by the passage of legislation which, while clear and comprehensive, must, at the same time, be sufficiently conservative to avoid exciting alarm or arousing antagonism on the part of owners especially of valuable herds.

The best law ever framed can be made an utter failure by stupid or injudicious administration, while, on the other hand, the most drastic legislation can be rendered acceptable if enforced with reasonable tact and diplomacy. Provided, therefore, that these qualities, combined with integrity, thoroughness and determination, are available for administrative purposes, the members of the Commission are convinced that the enforcement of a law based on their recommendations, will prove to be by far the most powerful and effective educational agency which could possibly be employed.

In concluding its Report, the Commission would suggest that the Association should make such provision as may be necessary to carry the work either by continuing the Commission as at present constituted with such changes in the personnel as may be considered desirable.

REPORT OF THE SUB-COMMITTEE ON EDUCATION

The Sub-Committee on Education respectfully submit the following: Bovine tuberculosis has become widely distributed throughout the United States and Canada and it has been determined that efficient systems or methods for its eradication and prevention either under the supervision of the state or nation or by the cattle owners themselves of necessity based on a knowledge of the nature of the disease and the means of dissemination.

Experience has shown that the principles of eradication and prevention may be successfully applied by individual owners of infected cattle, independent of state assistance. Such individual aid is essential in conjunction with state or national assistance in the prompt eradication of the disease from infected herds and the prevention of its entry to non-infected herds.

Therefore, it is the sense of this Committee that every possible method should be employed for educating the cattle owners and the general public concerning the nature of tuberculosis; the care and precautions necessary to prevent its entrance into herds already free from the disease; and the methods for its eradication from herds where it now exists.

Further, this Committee approves of the following methods of instructing laymen, practising veterinarians, practitioners of human medicine and health officers in the nature and control of bovine tuberculosis, namely:—

1. By the publication in agricultural and dairy papers of accurate and carefully prepared articles on bovine tuberculosis.
2. By the publication of appropriate articles on bovine tuberculosis in veterinary, medical and sanitary papers and journals.
3. By recommending to agricultural societies, granges and district farmers' institutes and unions, and especially those interested in cream and cheese factories, that lectures on bovine tuberculosis, its nature and control, be made a part of their programmes and that, so far as practicable, demonstrations be held.
4. That those having in charge the arrangement of town, country and state fairs be requested to provide lectures on bovine tuberculosis, and, if practicable, to hold public demonstrations at their annual meetings.
5. By placing a copy of the report of the Commission in the hands of the deans or directors of all veterinary and medical colleges and schools of sanitary science in the United States and Canada with recommendation that special emphasis be placed in their courses of instruction on the nature of bovine tuberculosis and methods for its control.

6. That a pamphlet dealing with the nature of bovine tuberculosis and methods for its control should be written in language intelligible to the layman. This pamphlet should have the approval of this Commission and the endorsement of the American Veterinary Medical Association. It should be published for free distribution.

7. That Departments of Agriculture, state veterinarians, live stock sanitary boards and others interested in the official control of bovine tuberculosis be requested to promote as much as possible the educational features of their work, with the object of obtaining more support and co-operation from cattle owners.

The methods suggested for carrying out an educational propaganda are not to be considered to the exclusion of any and all other ways by which the public may become informed on the nature of bovine tuberculosis, its economic importance and the necessity for an intelligent and united effort on the part of cattle owners and those having charge of the control of animal diseases to eradicate this great scourge.

The Committee is of the opinion from the history of the legislation regarding bovine tuberculosis in those states and countries which have attempted to deal radically with the problem, as well as from the special information which has been furnished by this committee to its members, and the light thrown upon the subject in the discussions at its several meetings, that in order to avoid friction and failure, all important legislation with reference to tuberculosis must be prepared with due consideration for the condition of public sentiment and information on this subject.

That tuberculosis control work should be developed in a progressive way.

That tuberculin tests made at a distance for public recognition (for example, in other states or foreign countries) can only be done satisfactorily by official veterinarians.

That the Delepine or Manchester plan of tuberculosis free areas gradually extended seems worthy of cautious trial.

(Sgd.) M. H. REYNOLDS, Chairman.
W. D. HOARD.
J. G. RUTHERFORD.

GOVERNOR HOARD'S REPORT

Educational Means for the Suppression and Control of Bovine Tuberculosis

Mr. President and Gentlemen of the Commission:

I place a high value on the work this Commission may do if performed wisely, in shaping the conviction and purpose of the people of Canada and the United States concerning the prevention and control of Bovine Tuberculosis.

As yet, that conviction is but little more than an ill defined dread of something not clearly understood by the great mass of farmers. Added

to this dread is a hope stronger yet, that the evil is not as great as has been asserted; that it is a scare that will soon pass over. As yet, in the minds of farmers and breeders generally, especially in those localities where demonstration work has not been done, there is a strong current of conviction that all this talk about the disease is an intemperate plea of the veterinarians, that the trouble does not amount to much. If the doctors and editors would hold their tongues and pens,

Just as long as this bank of fog exists, it will hamper all legal and individual effort in getting rid of the difficulty. At the bottom of the matter is a widespread ignorance on the part of farmers as to the disease that threatens them; it is difficult to arouse them out of their conservatism for as yet, all they know about it is talk.

The conservatism of intelligence is vastly different from that which exists because of a lack of knowledge. The first demands more light, the latter dreads light.

From what I have seen in Wisconsin, I am convinced that the most powerful aid to that action against the disease which this Commission is anxious to bring about, is public demonstration. One animal slaughtered before a body of farmers, and the diseased parts exposed to their view, is worth more to foster conviction and inspire effort than anything else that can be done. If the Federal and State Governments would devote means for this demonstration work, it would prove a most powerful educator. Public agitation in farmers' gatherings, and the talk of the Agricultural Press is useful mainly in keeping alive an interest in the subject. But gentlemen, we must remember that with the majority of men, a large majority, "Seeing is believing." I believe, therefore, that this Commission should use its influence in urging legislation by municipalities, and State and National legislatures for the spread and support of this demonstration work. Great care must be exercised, however, to use only such animals as will amply show forth the ravages of the disease. The great progress we have made in legislation in Wisconsin, and in securing a wide-spread acquiescence in the use of the tuberculin test, would never have come had it not been for a large number of public demonstrations held in various parts of the State.

We have gone as far as this in legislation: that after December 1, 1910, all animals sold for breeding or milking purposes must first be tuberculin tested. This, I believe, is a step further in advance than has been taken by any other state. It shows well the tone and temper of the farmers and the work which has been done to acquaint them with a better understanding of the situation. It is needless for me to say that if they are for the law, or any law, it goes; if they are against it, it is at best a dead letter. It is worth a great deal in the promotion of such objects to have a Live Stock Sanitary Board in a state, that will take hold and act in this work. In too many instances these organizations are purely negative in their influence, and so nothing is done. There is a notable lack of funds to bear the expense of demonstration work. The farmers everywhere would willingly be taxed for its support. Municipalities could

afford to have such expense for the sake of the education it would afford to consumers of meat and dairy products.

In conclusion, I would urge upon this Commission that special emphasis be placed upon the promotion of public exhibitions of diseased cattle before and after slaughter, as the most powerful means of education concerning the nature and danger of Bovine Tuberculosis.

(Signed) W. D. HOARD

REPORT OF COMMITTEE ON LOCATION OF TUBERCULOSIS IN CATTLE

Your committee on the location of tuberculosis in cattle desires to submit the following as its report upon this subject.

Though we are all agreed that no method for detecting tuberculosis in cattle equals the tuberculin test, we are forced to recognize that the universal application of the test under existing conditions is practically and economically impossible. The number of cattle to be tested, for example, is so great that, if all the available veterinarians and all such other persons as may be trusted to make tuberculin tests should be started on this work at once, and kept at it, years would pass before all the cattle in the United States and Canada could be tested even a single time. Consequently, our efforts to locate tuberculosis among cattle should depend primarily upon other means than the tuberculin test.

The tuberculin test should be regarded as having only an incidental value in the systematic work of locating tuberculosis, and as being of pre-eminent importance when we undertake the determination of the extent to which the disease is prevalent at any point in any herd where it has been located by other means or, incidentally by the tuberculin test.

In the order of seeming importance the means of location may be placed as follows:—

NOTIFICATION.

A law should be enacted requiring any and every person having knowledge of the existence of a case of tuberculosis among cattle to report the same without delay to some proper, designated authority. Such a law would be practically equivalent to the obligatory reporting of all clinical cases of tuberculosis which must be recognized as the most serious disseminators of tubercle bacilli and propagators of tuberculosis.

Since all cases of tuberculosis that are centres from which infection is being scattered, gradually become clinically recognizable, obligatory notification of all recognized cases of tuberculosis would alone in the course of a few years locate the majority of, if not all, badly diseased herds. It would certainly locate tuberculous cattle and herds faster than they can be handled for some years to come.

EVIDENCE THROUGH MEAT INSPECTION

An effort should be made to trace tuberculous animals back to slaughter houses to the farms from which they are derived. This is important because if the well-conditioned animals which go to slaughter for meat are tuberculous, it is probable that among the animals retained on the farm some active disseminators of tubercle bacilli exist, which are retained at the farm either through ignorance or a false idea of economy.

Meat inspection has already done much to establish infected animals from which tuberculous animals have been sent to market. At present, however, it is difficult to trace animals to the farms from which they were shipped, and some method of identification by means of which any animal found on the killing floor to be tuberculous, can be traced to its place of origin is greatly to be desired. A Federal law requiring appropriate tagging, branding or otherwise identifying all hogs and dairy cattle moving interstate for slaughter and state laws compelling similar identity for these animals moving within the state for slaughter, would be a means of locating a large proportion of the centres of tuberculous infection. Experimental work of this character which has been carried out in the past has given very interesting results. For instance, when the occurrence of tuberculosis amongst hogs at an abattoir is followed up by a tuberculin test of the cattle on the home farm it practically always discloses tuberculosis among these animals. Like much other evidence, this encourages us to believe that tuberculosis among hogs will cease to exist as an economically important problem as soon as we succeed in controlling the bovine source of tubercle bacilli.

THE TUBERCULIN TEST

When the tuberculin test is applied to cattle for any purpose it should be clearly understood that the reacting animals are to be regarded in every sense of the word as recognized cases of tuberculosis, which, under an obligatory notification law, must be reported at once to the proper authority. In this way tuberculin will serve as an important means of locating tuberculosis among cattle that are tested for reasons like the following:—

- (1) To obtain healthy animals for export.
- (2) To make sure that animals imported are free from tuberculosis.
- (3) To make sure that animals intended for interstate movement are free from tuberculosis. And here we would like to suggest that the public should protect themselves as much as possible against bovine tuberculosis by insisting that no new cattle shall be brought in until they have been shown by the tuberculin test to be free from tuberculosis. The time, we may hope, is not far off when even breeders of exceptionally fine stock of blood will begin to realize that the very best blood coupled with tuberculous infection is an article to be shunned, not because we wish to prevent that tuberculosis is hereditary, but because we know how readily it is conveyed from animal to animal by contact.

(14) To obtain milk from animals shown in the most conclusive manner to be free from tuberculosis, irrespective of whether the milk is intended for special certification or for more general or regular city use.

(15) To satisfy an owner of cattle that his herd is free from tuberculosis or to give him the information he needs to clean his herd from disease.

In whatever way the tuberculin test is applied, or for whatever purpose, all positive reactions obtained should be regarded as placing the reacting animal in the category of recognized cases of tuberculosis, which must be reported under a notification law.

As the newer methods of applying tuberculin for test purposes have not been found to be as reliable as the older, subcutaneous method, they cannot be advocated. The ophthalmic and cutaneous tuberculin tests may have a value in some special cases, as for example, where doubt exists about the reliability of a subcutaneous test because an animal may have been subjected to some pernicious manipulation. In this sense, these later modes of applying tuberculin should be kept in mind.

EXAMINATION OF MATERIAL FROM CATTLE AND HERDS

The valuable evidence that may be obtained as to the location of tuberculosis through the examination of milk, cream, butter, centrifuge lime and other products and materials from cattle should not be neglected, especially when these examinations are made by health officers and others for the protection of public health, and are followed up by the inspection of the animals and the character of their environment as a routine procedure. Such inspections are constantly becoming more prevalent in various sections of the United States and Canada.

MOST IMPORTANT SOURCES OF ANIMAL TUBERCULOSIS

Tuberculosis as it exists among the domestic animals of America to-day, undoubtedly owes its primary introduction to the cattle of improved breeding that have been imported from European lands from time to time in the past, for the purpose of improving the native stock of the country. No particular breed is to be incriminated in this charge, as several of the most prominent and popular breeds have been found guilty of furnishing tuberculous individuals to the best American herds on repeated occasions. The knowledge that infection has taken place from these sources in the past affords us a valuable indicator of the points where search should be made in our efforts to detect the cases of tuberculosis that exist to-day upon the farms of the country. First of all, then, attention may be directed toward all herds of pure bred cattle whether of beef or dairy type, especially to those from which cattle are sold either by private or public sale, and from which cattle are thus distributed to various parts of the country; also to herds from which members are exhibited at fairs and exhibitions; and herds which keep males for custom service.

In addition to these herds of pure bred cattle, there are many others to which well bred stock has been added for the purpose of grading up and improving the quality of the individuals of the herd. These in some instances have received the infection of tuberculosis with the new animals

from which such great benefits had been expected, and these herds of graded cattle should also be regarded with suspicion until they have proved to be free of tuberculosis. Next in order should come all cattle, but the methods by which the disease may be located in these has been discussed above.

(Signed.) JOHN R. MOHLER, Chairman
J. W. FLAVELLE.
C. A. HODGETTS.

REPORT OF COMMITTEE ON DISSEMINATION OF BOVINE TUBERCULOSIS

The sub-committee on the dissemination of bovine tuberculosis respectfully submits the appended report on the means for the dissemination of this disease, based on the present knowledge of the life history of tubercle bacillus. The possible means for the dissemination of this disease are enumerated as follows:—

1. The introduction into a sound herd of an animal or animals affected with tuberculosis: (a) those with open tuberculosis; (b) those in which the disease is in a period of incubation and (c) those in which the disease is temporarily arrested.

The last group will not transmit the infection speedily and possibly may never do so. The first group is certain to spread the virus.

2. By feeding calves milk, whole or separated, buttermilk or whey where the milk has come from tuberculous cows.

3. By bringing cattle suffering from open tuberculosis in contact with healthy ones at fairs, cattle shows and other exhibitions.

4. By shipping healthy cattle in cars not thoroughly disinfected recently occupied by tuberculous cattle.

5. By placing healthy cattle in stables that have not been thoroughly disinfected and which were recently occupied by tuberculous animals. This frequently happens with the change of farm ownership or tenants.

6. Tuberculous animals which do not react to tuberculin, such as those in the period of incubation or latent cases, but which develop open tuberculosis later, are frequently carriers of the virus although bought and sold as sound animals. These can not at present be differentiated from sound animals. Therefore all cattle coming from herds in which the disease exists should be considered as suspicious. The sound herd is the one to deal with.

7. Tubercle bacilli may be transmitted by tuberculous cattle running in a pasture, to healthy cattle in adjoining pastures where they are separated by a fence of such nature that the cattle may get their noses together.

8. Tuberculosis in cattle rarely, if ever, occurs through infection from (a) man, either directly or as a carrier of bovine tubercle bacilli; (b) from other species of animals, or (c) by infection from the droppings of crows, buzzards or other birds or carnivorous animals that have fed upon

carcasses of tuberculous cattle. It is the opinion of this committee that bovine tuberculosis is spread largely through the introduction of tuberculous cattle into sound herds; by the feeding of calves with infected milk, or milk products; by exposing sound animals to infected ones at fairs, or other cattle shows; and by exposing them to infected cars and stables. There are other ways in which now and then it is possible that an animal may become infected, but the means of dissemination mentioned in this paragraph are those to be guarded against in formulating efficient methods of control.

(Signed.)

V. A. MOORE, Chairman.
E. C. SCHROEDER.
M. P. RAVENEL.

REPORT OF COMMITTEE ON DISPOSITION OF TUBERCULOUS ANIMALS

Your Committee on the Disposition of Tuberculous Animals begs to submit the following report:—

In the work of control and eradication of tuberculosis in animals it is first of all of the utmost importance to establish the presence of the disease in all the affected cattle, since only by such a procedure will it be possible to guard the healthy and newly born animals from infection.

Fortunately, we are in a position to determine with considerable certainty the vast majority of occult cases of tuberculosis in cattle, even the incipient cases, with the aid of tuberculin, and the clinical cases by physical examination. This alone constitutes a great advantage in the work of suppression of the disease. The tuberculin test should therefore be considered as a very important step in the eradication of tuberculosis. As a matter of fact, all the recognized authorities on the subject are agreed on this point. Once the tuberculous animals are recognized, consideration must be given to the most suitable and economical way of eradicating the disease from the herd. This naturally brings up the question of the disposition of the tuberculous animals, and in adopting any particular method one should be guided by the extent of the infection in the herd, the quality of the affected animals, the sanitary condition of the premises, and last but not least, the owner's intelligence and knowledge of the subject. The latter information is necessary to determine if reliance can be placed on the owner to carry out minutely all the details which are essential in executing any particular method of eradication that may be decided upon. The owner's co-operation in this work is without doubt a very essential feature of this great task. For this reason a campaign of education of the farmers and stock raisers relative to the control of tuberculosis in which all the advantages of the eradication of tuberculosis must be impressed on them, would greatly facilitate this important campaign. It is a well known fact that any voluntary method of suppression by the herd owners themselves would bring about better and quicker results than when com-

pulsory measures are enforced upon them by legislative enactments. Nevertheless the time has arrived when a campaign looking toward the control of this disease should be entered upon by the general government as well as the state and province. This campaign must reach in the place all the clinical pulmonary forms of tuberculosis; then tuberculosis of the udder, intestines and uterus.

Having removed these exceedingly dangerous cases the balance of a tuberculous herd may be treated by the Bang system, which consists in the establishment of two herds of cattle, one containing the animals that react to tuberculin, and the other those that proved to be healthy. Each class of cattle is kept entirely separate from the other, in different stables when possible, and under the care of separate attendants, using separate utensils. The calves born of the diseased cows are removed from their mothers at birth and placed in the stable with the healthy animals where they are reared upon the milk of healthy cows or upon other milk which has been properly pasteurized. In this way the healthy portion of the herd constantly increases, while the diseased animals are disposed of as rapidly as may be deemed necessary, until finally all of them are gone and the remaining herd is composed entirely of healthy cattle. The tuberculin test is applied to the healthy herd at regular intervals, annually or bi-annually, in order to detect any cases of latent tuberculosis or reinfection which may appear.

A modification of the Bang system is Ostertag's method of suppressing tuberculosis. This system demands only a clinical examination of the original herd with the elimination of all open cases of tuberculosis. The calves from the remaining cows are immediately removed and brought up on pasteurized milk in the same manner as in the Bang system and a new herd is thus established from the young stock. Healthy nurse cows can be used for these calves instead of feeding them on pasteurized milk. The tuberculin test is applied to this new herd at stated intervals in order that any cases of tuberculosis which may develop therein may be discovered promptly. Neither of these systems, however, has met with much favor in this country, as it required a considerable length of time and care to create a herd free from tuberculosis by either of them. Nevertheless the inauguration of Bang's or Ostertag's method in herds of valuable animals, whether they be dairy or beef breeds, is unquestionably of an economic value, and in such cases either of these systems should be encouraged. On the other hand, in ordinary beef or dairy herds, the practice of Bang's or Ostertag's method in this country has not met with much encouragement owing to the extraordinary supervision, time and labor, as well as the loss of market milk from the reacting cows, which it involves.

In such herds the best ultimate results have thus far been obtained by the obligatory disposal of all the clinically affected cows and giving the dairyman the alternative either to pasteurize the milk from the remaining of his herd, or to be forced to refrain from selling the raw milk from the infected herd at all. In case he adopts the former method, the herd composed of diseased and healthy cattle should be placed in quarantine under the supervision of sanitary authorities, and no sales should be permitted.

from the herd excepting for immediate slaughter. The alternative method will compel him to dispose of his tuberculous animals in case he refuses to pasteurize the milk. The suppression of tuberculosis could be greatly facilitated and the co-operation of many of the herd owners could be gained by a provision by which a certain percentage of indemnity could at least for a term of years be paid for the condemned animals. The scale for such an indemnity should be arranged in accordance with the final disposition of the carcass under competent inspection.

Another method of eradication should receive serious consideration as being of value in some localities. This is known as the Manchester system, which is either the Ostertag or Bang system applied to localized areas or even individual farms, from which centres the work progresses to surrounding or neighboring districts and farms. Inasmuch as the animals affected with clinical tuberculosis are the greatest sources of danger in the dissemination of the disease, compulsory reporting of such cases should be inaugurated by the state, as is now done in many places in the control of human tuberculosis. Mandatory reporting of these cases and their prompt slaughter are very essential, as only by the elimination of these exceptionally dangerous cases can it be hoped to take up all the other details by which a successful control of bovine tuberculosis may be accomplished.

In conclusion your committee, having regard to the disposition of pure bred cattle, or valuable animals kept for either breeding or dairy purposes, would strongly recommend a system requiring the removal of all clinical tuberculous animals from the herd, the segregation of all calves from the remaining cows in order to establish a new, clean herd, the use of tuberculin tested nurse cows or pasteurized milk for these calves, and the periodic application of tuberculin to this newly established herd, as the only thoroughly reliable one.

(Sgd.) W. C. EDWARDS, Chairman.
JOHN R. MOHLER.
FREDERICK TORRANCE.

THE COMMISSION'S RECOMMENDATION ON ERADICATION—A COMPOSITE OF THE METHODS OF BANG AND OTHERS

The Commission after stating the known facts regarding the nature of tuberculosis and enumerating the principles to be observed in its prevention and eradication, recommends the following plan of procedure. It is recognized that in several points there are opportunities, in order to meet individual needs, to change or modify the directions herein given. It is understood, however, that whenever such modifications are made they should conform in the greatest detail to the principles laid down in the report of this Commission. The plan has for its purpose the conservation of the herd whenever that is possible.

The control of bovine tuberculosis involves a definite procedure under two distinct and different conditions, namely: (1) where a herd of cattle is free from tuberculosis and it is to be kept so, and (2) where one or more animals in the herd are infected and the purpose is to eradicate the disease and establish a sound herd.

PROCEDURE UNDER CONDITION (1)

The prevention of tubercular infection in cattle free from tuberculosis consists simply in keeping tuberculous cattle or other animals away from the sound ones; in keeping tuberculous animals out of pastures, sheds, and stables where the sound ones may be kept. Healthy cattle should not be exposed to possible infection at public sales or exhibitions. Raw milk and milk by-products from tuberculous cows should not be fed to calves, pigs, or other animals. Cars that have not been thoroughly disinfected should not be used for the transportation of sound cattle. Cattle that are purchased to go into sound herds should be bought from healthy or tuberculous herds only.

PROCEDURE UNDER CONDITION (2)

The eradication of tuberculosis from infected herds requires the conservation of the herd different procedures according to the extent of infection. For a guide to the control of the disease tuberculous herds should be divided into three groups, namely:—

1. Where 50 per cent. or more of the animals are infected.
2. Where a small percentage (15 per cent. or less) of the animals are affected.
3. Where a large number (15 per cent. to 50 per cent.) of the animals are diseased.

In eliminating tuberculosis from infected herds the following procedure is recommended:—

GROUP I.

Herds where a tuberculin test shows 50 per cent. or more of the animals to be infected should be treated as entirely tuberculous. The procedure here is as follows:—

1. Eliminate by slaughter all animals giving evidence of the disease on physical examination.
2. Build up an entirely new herd from the off-spring. The calves should be separated from their dams immediately after birth and nursed on pasteurized milk or on that of healthy nurse cows. This new herd should be kept separate from any reacting animals.
3. The young animals should be tested with tuberculin at about six months old, and when reactors are found at the first or any subsequent test—the others should be retested not more than six months later. When there are no more reactors at the six months test annual tests should be made. All reacting animals should at once be separated from the new herd and the stables which they have occupied thoroughly disinfected.
4. When the newly developed sound herd has become of sufficient size, the tuberculous herd can be eliminated by slaughter under inspection for beef.

GROUP II.

1. The reacting animals should be separated from the non-reacting ones and kept constantly apart from them at pasture, in yard and in stable.

(a) **Pasture.**—The reactors should be kept in a separate pasture. This pasture should be some distance from the other or so fenced that it will be impossible for the infected and non-infected animals to get their heads together.

(b) **Water.**—When possible to provide otherwise, reacting cattle should not be watered at running streams which afterwards flow directly through fields occupied by sound cattle. The water from a drinking trough used by infected animals should not be allowed to flow into stables, fields or yards occupied by sound animals.

(c) **Stable.**—Reacting cattle should be kept in barns or stables entirely separate from the ones occupied by the sound animals.

2. Calves of the reacting cows should be removed from their dams immediately after birth. Milk fed these calves must be from healthy cows; otherwise, it must be properly pasteurized. These calves should not come in contact in any way with the reacting animals.

3. The non-reacting animals should be tested with tuberculin in six months, and when reactors are found at the first six months, or any subsequent test, the others should be retested not more than six months later. When there are no more reactors at the six months' test, annual tests should thereafter be made. All reacting animals should at once be separated from the new herd and the stables which they have occupied thoroughly disinfected.

4. The milk of the reacting animals may be pasteurized and used.

5. Any reacting animal which develops clinical symptoms of tuberculosis should be promptly slaughtered.

6. An animal that has once reacted to tuberculin should under no circumstances be placed in the sound herd.

7. As soon as the sound herd has become well established, infected animals should be slaughtered under proper inspection.

GROUP III.

Herds that come within this group should be dealt with either as in Group II., where the herd is separated, or as in Group I., where all of the animals are considered as suspicious and an entirely new herd developed from the offspring.

GENERAL PRECAUTIONS

In all cases, animals that show clinical evidence of the disease should be promptly eliminated. They should be destroyed if the disease is evidently far advanced; if not, they may be slaughtered for food under proper inspection.

All milk from tuberculous cows that is used for food purposes should be thoroughly pasteurized. This means that it must be heated sufficiently to kill or to render harmless any tubercle bacilli that may be present in it. For this, it is necessary to heat the milk for twenty minutes at 149° F., or for five minutes at 176° F. It is important that pails or other utensils used

in carrying the unpasteurized milk should not be used, unless previously sterilized, for storing the milk after it is pasteurized.

When diseased animals are found, the stables from which they were taken should be thoroughly cleansed and disinfected. To accomplish this, all litter should be removed; floors, walls and ceilings carefully swept; the floors, together with mangers and gutters, thoroughly scrubbed with soap and water. Thorough cleansing before the application of the disinfectant, cannot be too strongly emphasized. After cleansing, the disinfectant should be applied. A five per cent. (5 p.c.) solution of carbolic acid, a 1-1000 solution of corrosive sublimate, or a four per cent. (4 p.c.) solution of sulphuric acid may be used.

When the stable can be tightly closed, formaldehyde gas properly used is reliable and satisfactory.

If tuberculous cattle have been kept in a small yard the litter should be removed, the surface plowed and the fencing and other fixtures thoroughly cleansed and disinfected.

ADDRESS ON "BOVINE TUBERCULOSIS"

By DR. J. G. RUTHERFORD.

Veterinary Director-General and Dominion Live Stock Commissioner

On Wednesday Evening, September 28th, 1910, in the City Hall, Victoria

DELIVERED BEFORE A MEETING OF THE B. C. BAYMEN'S AND STOCK-BREEDERS' ASSOCIATION

Mr. Chairman, Ladies and Gentlemen:

I feel tonight somewhat as if I were the victim of circumstances. I have been brought before you under a misapprehension. I asked Dr. Tolmie to arrange matters so that I could have a talk with the stock men on various matters in which we are mutually interested. Without volition on my part, it appears that I have been asked to deliver an address on bovine tuberculosis. I do not know that I can tell you anything that you do not know already, and do not wish to forego the original purpose of the meeting, so would suggest that while we may have a general discussion on tuberculosis, an opportunity may be afforded for me to hear what the stock men think of the Live Stock Branch, and any suggestions they may see fit to make as to how the relations between this branch and themselves can be bettered or altered in any way.

Again, I feel, on opening up the subject of bovine tuberculosis here in Victoria, as if I were in a false position, because the Province of British Columbia is in regard to this matter the most advanced province of the whole Dominion. It has gone further than the Dominion Government has heretofore ventured to go, and has certainly gone much further and more systematically into the question than the government of any other province in the Dominion. I am more than pleased to note that the people of British Columbia are so much alive to the importance of the control of bovine tuberculosis as to have inaugurated such an extensive and able policy as they have done.

I have, during the past year, occupied the position of Chairman of the International Commission on Bovine Tuberculosis, a commission appointed last year in Chicago by the American Veterinary Medical Association, with the support and endorsement of the Governments of the United States and Canada, as well as of the Governments of a number of States, and the faculties of a number of prominent Universities, as also the support of the Government of the Province of Ontario, and of several very prominent individuals. The Commission is composed of fourteen men, and we have worked very hard during the last year for the control and possible eradication of bovine tuberculosis. We have held four meetings,—in Buffalo, Detroit, Ottawa and Madison,—and I had the pleasure in San Francisco three weeks ago of presenting the report of the findings to the parent Association. That report is now being published and scattered broadcast over the whole country, and while of very great interest to many

of the Provinces, it is of comparatively little interest to the Province of British Columbia, because your Government has in force now many of the most salient and important features.

I may say that there are two great divisions into which the question naturally falls. The first of these, and the most important,—because the solution of the problem involved in it would mean a solution of the other problem—is the control and eradication of bovine tuberculosis among the cattle of any country or community. That is a problem for the veterinary sanitarian. It would mean stamping out tuberculosis among hogs. Hogs are exceedingly subject to tuberculosis. We find, in our inspection of the various large abattoirs, that the percentage of tuberculous hogs is very large, and we also find that that tuberculosis is almost invariably bovine tuberculosis, that is, it is of bovine origin. There may be a few cases where hogs are exposed to human infection through food or contact, but in the great majority of cases we find that it is of bovine origin. It is a very striking thing that bovine tuberculosis seems to be capable of remarkably easy transmission to almost any other animal—though, of course, several species are more susceptible than others,—whereas we find that the tuberculosis of other animals is not so easily transmitted. In fact, more nearly than any other, lends colour to the suggestion which has been a great many supporters some ten or twelve years ago,—that bovine tuberculosis is the mother lode, and that human tuberculosis also has its origin in the bovine form. That theory received a very severe blow from the announcement made in London, in 1901, by the late Dr. Robert Koch, who insisted that there was little or no connection between the two diseases, and that the danger of the transmission of bovine tuberculosis to human beings was very small. We find, however, a great many of the minor facts which lend support to the belief that bovine tuberculosis is the parent of all tuberculosis. I am not going to emphasize that or discuss it tonight, because it is at present incapable of proof.

The first great division then, is the eradication of tuberculosis among the cattle of a country,—a problem which concerns those branches of government which have control of animal diseases. The other problem, the one more easy of solution, is that of the prevention of the transmission of bovine tuberculosis to human beings through the meat and milk, and the products of tuberculous animals. That is a point upon which there should be no misunderstanding. Everyone should have the fact clearly in their mind,—that there is no connection between the two problems. It is not possible for a community to solve with comparative ease the question of the prevention of the transmission of bovine tuberculosis to human beings, leaving to one side the question of the eradication of the disease among the cattle themselves.

The report of the Commission to which I have referred is devoted almost entirely to the largest of these two problems. On the other hand, the question which appears to me to be of most importance to you is the question of the transmission of bovine tuberculosis to human beings. This is the line on which your Government has taken the matter up. I may say that, in my opinion, there cannot be too much attention paid to it.

phase of the question. Leading veterinary scientists of Europe, as well as of America, have come definitely and finally to the conclusion that it is impossible to feed calves or pigs on milk from animals which have reacted to tuberculin and raise those animals free from tuberculosis; that is, no sensible veterinarian, who wished to create a disease-free herd of cattle, would venture to feed the calves on the milk of cows which had reacted to tuberculin, and no sane, sensible man wishing to raise hogs free from tuberculosis, would feed those hogs on milk drawn from cows which had reacted. I am not speaking of animals with advanced tuberculosis,—broken down, or in the process of breaking down with tuberculosis, nor animals which are affected with that loathsome form of the disease, tuberculosis of the udder, but of cows which are apparently healthy and do not show to the ordinary man any indication whatever of being diseased, but which are actually diseased,—as shown by their reacting to tuberculin. The percentage of calves raised on the milk of such cows, which develop tuberculosis as a result of such raising, varies considerably, but runs from 25 to 50%. The percentage of hogs which become affected with tuberculosis through using the milk of such animals, runs from 50 to 60%. These are very striking facts.

It is the province of the medical profession to look after children, and see that they do not run the same risk as pigs. Out of every 100 persons who die, 14 die from tuberculosis and of the remaining 86, over 50% are tuberculous. You will realize that there must be some great cause for this prevalence of the disease, and when you realize that the results which I have mentioned follow in the case of calves and pigs fed on the milk of tuberculous cows, you will understand, I think, the reason why so many people, the great majority of whom have drunk more or less milk from such cows in their lifetime, are affected with tuberculosis. A great many of these people have the disease in such a form that even a very skillful physician would have great difficulty in demonstrating its existence, but the proof offered by the autopsies of people who have died in hospitals and who have these tuberculous lesions in their bodies is too conclusive to admit of contradiction.

For many years, one of the great bugbears that we had to contend with was the fact that the scientists told us that the milk of the majority of cows which reacted to tuberculin without showing clinical symptoms, did not contain tubercle bacilli. Thousands of examinations of the milk of such cows were made, and in a great many cases no bacilli were found in the milk, and therefore it was said that there was no danger in using it. Finally, experiments were made with calves and pigs, and it was found that they became affected with bovine tuberculosis even when taking the milk of cows which apparently did not show the bacilli in milk. The subject began to attract attention, and a number of investigators have studied the matter out, and it may not be out of place to explain how a great many of these cows are dangerous, although there may be no tubercular bacilli in the milk at the time it actually comes from the udder.

A great many cows are affected with open tuberculosis. It is not uncommon to find large abscesses in the lungs, which communicate with

the bronchial tubes. Now, the cow coughs a great deal. Anyone with pulmonary tuberculosis in the cow knows that she coughs, but she does not spit. A human being will spit. The cow swallows the sputum, coughs up this discharge and swallows it, and it passes through the digestive system and goes into the manure, and that becomes frequently mixed with the milk. In fact, if you were to read the reports as shown in New York and other cities, of the enormous quantities of manure that gets into milk you would realize the danger. It is in this way that a great deal of the milk from such cows becomes infected with tuberculosis. That is going on all the time, and it appears to me that it is a recognized fact that you cannot raise calves or pigs with safety from such cows, the community which permits the use of milk from such cows, the children from cows not known to be free from tuberculosis is very much exposed, and if that is true, what shall be said of a community which permits the sale of milk for human consumption from cows known to be infected with tuberculosis? It is a matter for you yourselves to decide whether you are going to let this go on or take steps for its prevention so that the cows which are supplying milk for yourselves and your families shall be free from tuberculosis.

I may say that your system of doing things in British Columbia is a little different from what prevails in the other provinces, and I am very glad, because it is affording an opportunity of showing what can be done. In the other provinces the practice is to empower municipalities to make by-laws for the control of dairies, etc., and there is no compulsion on the Government to understand that here the Government does the inspection itself, and I think that this course is infinitely preferable to that of doing nothing in the other provinces. In Manitoba the Act empowers municipalities to make the tuberculin test and to cut off for the supplying of milk all dairies failing to react. In Portage La Prairie, my home town, in 1894 that policy was adopted, and has been maintained ever since. Cows are tested regularly, and no cow is permitted to supply milk for human consumption unless it is guaranteed by the Veterinary Inspector to be free from tuberculosis. In the towns of Neepawa, Stonewall and Winnipeg are awakening to the necessity of taking action. In Ontario there is no one single community which insists on the tuberculin test. From influence which was brought to bear a clause which was introduced in the municipal act to provide for the application of the tuberculin test to dairy cows was eliminated, and consequently there is at the present time no legal authority in any province for the tuberculin test. In Quebec, the City of Quebec and a few or two other places have taken up the matter. There is a general feeling of passing over the country which I think is going to have far-reaching and beneficial results, and in British Columbia the action taken is going to have a very good effect.

So far as the danger from milk products,—butter and cheese,—is concerned, that has been to a very large extent ignored, owing partly to the enormous interests involved, and the great financial loss which would arise from the butter or cheese of any particular community being found to be the possible channel of tuberculosis infection to the human

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But a series of experiments conducted at Washington by Dr. E. C. Schroeder not long ago has shown that butter especially, made from the milk of tuberculous cows is capable of retaining the tuberculous bacilli for a long period. The experiment was conducted with a number of pigs. These were tested, to make sure that they were free from tuberculosis, and were then kept in separate pens, absolutely clean. They were fed for thirty days only, one ounce of butter daily, with the ordinary quantity of salt in it. This butter was of various ages but in no case less than three months old. When slaughtered some three months later it was found that three out of the four pigs had developed tuberculosis.

Cheese is less dangerous, because the bacillus does not as a rule live as long in it, but it is still dangerous. We have recommended very strongly the proper pasteurization of all milk and milk by-products used for food (skim milk, and butter, milk and whey from the cheese factory). It has been found that in co-operative dairy districts the pigs are very badly infected indeed, and in order to protect the pigs we desire to see all our Governments pass legislation which will render absolutely imperative the pasteurization of these by-products. Of course, the products themselves are, like the milk, the particular care of the medical profession, who have charge of the bodies of the human beings. We, as a Commission, were not delegated to deal with that question, and therefore only referred to by-products.

The meat of tuberculous animals is also anything but a desirable article of diet. It is not as dangerous as the milk, for the reason that in the majority of cases the meat is cooked, and cooked tuberculosis, while not altogether a pleasing article of diet, is not quite as dangerous as if raw. It is very essential that it should be thoroughly cooked. I have never been able to get the point of view that tuberculous meat is not bad because it is cooked. We try to get over that by our system of meat inspection, but unfortunately cannot, under the federal law, deal with municipal meat inspection, and have charge only of those abattoirs which slaughter for export or inter-provincial trade. We do not allow any meat to be shipped from one province to another, or out of Canada, unless it has undergone inspection by our thoroughly trained staff of inspectors, at least one of whom is in every one of these abattoirs. The matter of municipal meat inspection, however, is one which can only come under municipal legislation, but in Ottawa, Hamilton, Winnipeg, Calgary, etc., the residents obtain the benefit of our inspection, because every animal which goes into the export abattoirs must be inspected, whether intended for export or not, and as many of the butchers and retailers are supplied from these houses, the benefit is very great. Even on Victorian markets you will find beef, bacon and hams inspected by us, and marked "Canada Approved," and when you see that mark, you can take my word that the material has been thoroughly and properly inspected, and you are not incurring any danger in eating it.

Now, about the demonstrations you are having at the hands of the provincial inspectors. It is quite possible,—altho I learn in the great majority of cases which have been examined the disease has been easily

determined,—it is quite possible that an animal may give a definite reaction to tuberculin and have all the general appearance of having tuberculosis, and yet, upon being slaughtered and examined for demonstration of the disease, no evidence of the disease may be found. That does not prove that the animal is not tuberculous, but that the disease is either so minutely and so deeply seated as to be practically impossible of detection.

In a herd of some 42 animals, 28 of which were reactors, the herd was bred and kept under open-air conditions just across the river from Glasgow, where the climate is very severe, there was a very good Friesian cow, pure bred. She reacted to tuberculin in the winter of 1905-6. She was tested again in the fall of 1906 without reacting, and again in the spring of 1907 without reacting; again in the fall of 1907 she reacted. She was killed about a month after she reacted, and we absolutely failed to find any evidence of tuberculosis anywhere in the cavities. Mr. Trotter, City Veterinarian for Glasgow, where they have the best system of meat inspection in the world,—and Mr. Trotter is one of the best inspectors in the world,—told me that whenever we had a case of tuberculosis to any extent in the thorax and abdomen, it always showed up in the deep-seated lymphatic glands in the muscles. We had been doing this; I had some three or four inspectors helping me, and we had said: We cannot find it; it is not worth while going after the lymphatic glands in this case. But we did, and in the left popliteal gland we found a mass of broken-down, purulent tuberculosis, as large as an almond, and a walnut, full of bacilli, and the pus from that gland when inoculated into a guinea pig, caused its death from tuberculosis within a very short time. So that you must not conclude, if at any time you do not see the evidence, that the animal is not tuberculous.

There are one or two things about tuberculosis. One of these things is that you may lay it down as a definite principle that any animal which once given a positive, definite reaction to tuberculin, is tuberculous, and that you must not think about a cure, and you must not think of anything but the disease. There is only one thing to do, and that is to either kill or absolutely isolate that animal. Another thing is that in trying to build up a herd you must not be satisfied with one test. It takes from thirty to fifty days for tuberculosis to develop in an animal sufficiently to give a definite reaction to tuberculin, that is, the disease is not established in the system sufficiently to allow tuberculin to produce its reaction in a minimum period of eight days, and so far as is known at present, a maximum of fifty days has elapsed.

Now, say you have 100 head of cattle in your herd, and you give them a tuberculin test, when 25 react. You think you have 75 sound cattle, but you have not, because they have been living with the 25 reactors. When they are tested again within three months they may show you 10 reactors. And then the 65 will not all be sound cows, because they have been living with the reactors, and though you may be fortunate enough to get the lot and get rid of them in these two tests, still you see how important it is to have at least one test more before you make up your mind that your herd is free from disease. The second test for

which have not reacted is all right, but the second test of any animal which has given a definite reaction is not worth anything. The animal may react again or it may not, but if it has given one definite, positive reaction, you must class it as tuberculous, and deal with it accordingly.

Of course the best and safest way is to kill those animals, but it is expensive, and if they are exceedingly valuable from a breeding standpoint, it is quite possible to raise perfectly sound and healthy animals, provided the calves are removed from the dams as soon as they are born and raised on the pasteurized milk of their dams, or the milk of healthy cows, and this is what is being done in a great many herds throughout the world today.

Then, the question of pasteurization comes up. What is it? One must be careful to see that milk is properly pasteurized. Unless you know it is properly pasteurized, you will be very foolish to use it for domestic purposes. It is now recognized by the medical profession that milk kept at an even temperature of 145 degrees F. for thirty minutes, is properly pasteurized, while this comparatively low temperature has a much less injurious effect than a higher one on the milk.

Dr. Hall asked if tuberculosis was found more frequently in those herds which were kept in close, ill-ventilated stables during the winter, than in those which were properly ventilated.

Dr. Rutherford: We find, of course, that where we have proper ventilation, the disease does not spread with anything like the rapidity with which it does in foul and dirty stables. At the same time, it is only right to state that the results of the experiments conducted under open-air conditions in Ottawa did not demonstrate to any great degree the efficacy of the open-air treatment as a preventive of infection, and in the University of California they have been carrying on similar experiments, and have found the same thing, viz., that the disease will spread among cattle even under open-air conditions. Of course, the theory now advanced is that the disease is transmitted through the digestive tract rather than by inhalation. At the same time, I believe strongly in thorough ventilation, and would like to see a marked improvement in that respect.

With regard to congenital tuberculosis. Every now and then, perhaps in one per cent. or less, we have calves born affected with tuberculosis. Such calves are generally exceedingly unthrifty, and are cut off at a very early age. This must not be confounded with heredity.

Dr. Hall: What has been your experience as to the kind of tuberculosis transmitted from cattle to the human being? Is it principally tuberculosis of the membrane, bone and gland rather than the lungs?

Dr. Rutherford: I am scarcely sufficiently scientific to enter the lists on that phase of the question, and personally, of course, am not aware of the transmission of bovine tuberculosis to the human being. I do not practise with that class of patient, but I understand that in young children the disease takes the form of post-pharyngeal or mesenteric tuberculosis, and in older children, of tuberculosis of the brain and spinal cord. The opinion which I understand is held by the majority of medical scientists

is that the infection of human beings, even by other humans, is through the alimentary tract, eventually reaching the lungs, so that it is reasonable to suppose that the majority of bovine lesions found in human beings are in the alimentary tract and lymphatic glands, and that the disease would eventually reach the lungs.

Dr. Rutherford was asked if he thought it possible for a cow to contract the disease after exposure to a rain storm, or severe cold, etc., but he said that it would never get tuberculosis without the seed being already present, and that the bacillus had no permanent habitat outside of the animal kingdom.

Dr. Rutherford: The germ will live for a short time in dry manure, dust, dry manure, etc.,—if kept without sunlight at a temperature the same temperature as that of the animal. It will remain alive if kept moist under similar conditions for a considerable time, but such conditions and fresh air are fatal to it.

I would say that it is a recognized principle, in spite of what I have said tonight about tuberculous meat, that it is quite unnecessary to destroy entirely the bodies of all cattle and pigs affected with tuberculosis. I have not with me a copy of our Meat Inspection Act, in which certain provisions are given to our inspectors, who have a reasonable amount of latitude as to deciding whether a carcass shall be totally condemned or whether it shall be utilized for food purposes after the removal of the diseased tissue. There is one thing certain,—that the carcasses of no cattle reacting to tuberculin should be allowed to go into ordinary consumption unless they have been slaughtered under careful and competent inspection, because there is no other way can it be decided whether the meat of reacting animals can be safely utilized. A great many people shudder at the idea of eating the meat of animals affected in any way with tuberculosis. I remember in 1804, the question became rather a live one in Winnipeg. I was then a member of the Provincial Legislature. The city was in a great deal of trouble because they had tested the herds and found that they were badly affected with tuberculosis. Many people in Manitoba, and in other cold parts of the country, were under the impression that in order to obtain a high milk yield, the cattle should be kept in a stable with a very high temperature. That is all wrong. Many of these people were Icelanders and in the habit of putting their cows into what were practically air-tight boxes for the winter, and keeping them warm, and the percentage of reactors was enormous. In 1804, there was a great difference of opinion even among medical men and veterinarians, on the subject of the tuberculin test, and the nature of bovine tuberculosis. The Mayor of Winnipeg called a public meeting to discuss this very live question, and asked me to attend and speak at this meeting. I declined, because many of the learned men would say that the danger was all nonsense, and it turned out just as I said. The next night the Mayor asked me to go and meet the Board of Health in the City Hall. I went, and suggested that they should destroy through the byres and take out the clinical cases of tuberculosis, and destroy them at once at the owner's expense, and then set by the side of reacting cattle not showing clinical symptoms, turn them out for

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summer on the prairie under herd, and have them slaughtered in the fall under careful veterinary inspection. The carcasses of such as were fit could thus be used, and the others destroyed. The next day I was going to the House, and in the car overheard a discussion between two men about this, and they both thought I was a fool to suggest the use of meat from diseased cows as human food. After a while I turned and said to them: "Gentlemen, what do you do with these cows now? Do you have a bovine cemetery where you bury these cows now; or have you been eating them right along, without any veterinary inspection or supervision whatever?" Well, of course, I had them, as they had been eating those cows right along. But you need not hesitate at all about eating any meat from animals suffering from tuberculosis, which has undergone a complete and competent examination. It is understood that as far as reacting cattle which are to be killed are concerned, as much of the meat as possible should be used for food, both to lessen the expense to the owner and the Government or the community.

The reacting cows and bulls in any herd, if it is desired to keep them, must be strictly isolated. All clinical cases should be eliminated at once by slaughtering. All those which are not clinical cases should be segregated. The stables in which the sound animals are kept should be thoroughly cleansed and disinfected. Where any of these animals are kept, to form, with the young stock, the nucleus of a new herd, there should be a second test not more than six months after the first, in order that if possible, any reactors which have developed the disease since or are developing it at the time of, the first test, should be detected. There should be absolutely no communication between the two herds. Calves from the diseased herd should be removed as soon as they are born to the other herd, and should be raised on the milk of the healthy cows, or the milk of their dams properly pasteurized. In that manner, a perfectly healthy herd can be raised, although all authorities have agreed that where a large percentage of any herd is diseased, it is a safe principle to treat the whole herd then in existence as diseased, and begin forming a new herd from the calves only.

When the system of an animal becomes saturated with tuberculosis owing to the existence of the disease in a generalized form, then it frequently gives no reaction. That is a clinical case, but not a reactor. What we call a clinical case is an animal which shows evidence to the veterinarian of being diseased, without being tested at all. When I was young, we had no tuberculin. The veterinarian was often called in to decide whether an animal was tuberculous or not, and in those days we of course paid a great deal of attention to the clinical case. We used to examine the cow's pulse, temperature, lungs, etc.; then along came tuberculin, and the younger generation of veterinarians has almost neglected the clinical case, because it is so easy to test with tuberculin, and it is almost invariably correct. But a clinical case is one that the veterinarian can detect without the use of tuberculin.

Mr. Brethour, Burford, Ontario: I am interested in this question from a breeder's standpoint. I fully agree with all that has been said, but for

the breeder there is another side. In the first place, it means a guarantee to have a herd free from disease, but those who are so desirous of pure milk and pure meat will have to meet a question of cost. The man who is breeding animals breeds them for profit. If he is to continue the business, he must make it pay. Now, if the public make the matter so great that breeders have to go out of the business, then it is going to be a serious question.

To my mind, the public have to be prepared to pay a relative value for the food they get. That has practically been lost sight of. It is a question to say no compensation. There is a possibility of this, and if so, the man who say that some breeders who cannot afford to lose their animals without compensation, will try to keep them from being tested. At the same time, I would like to see some move made so that the product will receive a higher price when stamped with the approval of the Department and be free from disease.

Mr. Withycombe, Portland, Oregon: That is the very worst thing a man can do, to hide a case of tuberculosis. There is nothing more serious a loss than to have a tuberculous animal on his place.

Mr. Brethour: There is a tendency to do it, and I think that is one of the things we have to provide for, and that is one of the very best ways to stamp out the disease.

Dr. Rutherford: I can sympathise with Mr. Brethour, who is one of our leading breeders in the East, but he is wrong. So far as I am concerned, any tuberculous animal being killed is being paid compensation for at considerably more than its real value. So far as Eastern breeders are concerned, there have been no cattle killed by order of any government department, either federal or provincial. The only Canadian Government which has killed cattle is that of British Columbia, and they are not paid for them. But I want to point out to Mr. Brethour and all breeders the responsibility of keeping a tuberculous herd. I need not dwell on the ordinary, common-sense business principle of having a disease-free herd. A man knows that if he wants to do away with piners and wasters, the trouble of one kind or another, he does not want a tuberculous herd. Apart from this fact, what about his brother breeder, who goes to him as a breeder in all good faith and gets given him for his good money an animal that will probably break him, and put him on the road inside of a few years.

I have been over thirty years in dealing with this question, and I have no sympathy with the breeder who hides a diseased animal, and it is up to the men who will have to answer for it some day.

I do not want any injudicious or unjust legislation about this matter. Before there was a proper knowledge of tuberculosis, different countries rushed in and passed legislation, and have had to draw back because they did not understand what they were trying to do. On the other hand, we have been holding back everyone in Canada for years, and I was responsible for the formation of this International Commission, because I felt the time was now ripe for Governmental action.

PART II.

1. Bovine Tuberculosis in British Columbia and its Eradication

M. A. JULL, A. KNIGHT and H. H. S. GEORGE

2. Contagious Diseases (Animals) Act,

Chapter 48, 1897. Amendment Act, Chapter 12, 1911

TUBERCULOSIS IN DAIRY CATTLE AND ITS ERADICATION

Tuberculosis or Consumption is a bacterial disease caused by the presence in some part of the body of a minute rod or sickle-shaped organism known as the *Bacillus of Tuberculosis*.

It gains entrance into the body through the air passages, through inhalation, by ingestion, and by infection through the teat ducts.

It can gain entrance into a herd by direct contact, that is, by purchase of a tubercular animal and the placing of the same in the herd, as well as by contaminated feed.

Once the disease is introduced into the herd it is usually kept in the herd through the medium of the stables, for in the inspection of dairy herds we find quite a number of them poorly lighted and poorly ventilated, and a great number of the cows in a dirty condition. It is owing to these conditions that in some cases we find that the disease has quite a large percentage in the herd.

Our aim is to try to stop the disease before it has got such a hold of the animal that anyone could tell there was something wrong with it. Therefore we employ the tuberculin test, as it is only by the use of this test that we can tell with certainty that a cow is tubercular in the early stages of the disease. It is by isolating and destroying these reactors that in course of time we expect to get the dairy herds free from the disease.

The tuberculin test, to describe it briefly, is the introduction of tuberculin into the skin, by means of a hypodermic syringe, of a small quantity of tuberculin, when, should the animal be tubercular, it is thrown into a condition of fever for a short time. The application of the tuberculin test does not increase the activity of the disease, nor is the animal, after the fever has gone down, any worse for the testing. It has no effect on healthy animals, either during the progress of the test or afterwards. Post mortem examinations are usually held on all reactors, and the efficiency of the tuberculin test has been fully demonstrated as an accurate and reliable means of detecting tuberculosis in all cattle, and dairymen need not have any fear of the animals being condemned when the test has been properly carried out by competent men.

Therefore in diagnosing the disease and the eradication of the disease from a herd the tuberculin test is employed. In case of any animal reacting to the disease, the best method of procedure is to destroy the animal unless they are very valuable, or, in case the whole or greater part of the herd should be diseased, disinfect the stable thoroughly and treat the whole herd as being diseased. By this means you can build up a healthy herd. In our animals very, very few are born diseased, in fact the percentage is so small that we can safely say that the disease is not hereditary.

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well ventilated stable. Only where the udder of the mother is not diseased is it permissible to let the calf have the first feed from her. By this means we get the bowels acting properly and this does away with the necessity of giving the young calf oil. All other milk should be from healthy cows. Test the calves when six months and one year old and after that, annually, with the tuberculin test. Remove all reactors and disinfect the stable, and thus with a minimum of cost you will be able to raise from a diseased herd one that is healthy.



FIG. 3. Three Tuberculous Cows. In the cow to the left the intestinal tract was largely covered with miliary deposits and lungs were almost totally gone. The centre cow and the one to the right had tubercular abscesses in the lungs and all of the bronchial and mediastinal glands were affected. The last two cows looked well and showed no external symptoms but were detected by the tuberculin test.

On the other hand, if one does not want to go to that trouble, all those that are in shape to be sent to the butcher, sell to him, but they must only be sold subject to a veterinary examination at the time of slaughter, to see if the meat is fit for human consumption.

Milk from a tubercular herd may be pasteurized and so become non-injurious, but this method is not advocated except in exceptional cases.

All cows that did not react to the first test should be again tested in six months' time, in case any were in what is known as the incubation stage of the disease at the time of the test, in which case they would not react.

Thus giving the animal time to get past this period and if disease react to the second test. After that have your herd tested annually.

The Government, realizing from an economic and hygienic standpoint the importance of eradicating tuberculosis from among the cattle of the Province, has adopted a policy of grading the dairy herds and premises. The conditions upon which the grades are based are given in Chapter 1 of the Laws of British Columbia, 1911.

With the system of grading herds and premises the consumers can very readily see the standing of the party from whom they are purchasing their milk and can learn of the condition of his dairy herd and premises as regards sanitation.

In certain districts there has arisen a demand for certified milk, which we mean milk that is from cows which are tuberculin-tested every six months, and are free from tuberculosis, and the premises and utensils are in a sanitary condition. The cows are milked under the most scrupulous care. Samples of milk are taken and twice a month examined for bacteria by a specialist. If the milk comes up to the standard a certificate is issued that such milk has been inspected, and this certificate is good for two weeks only. This milk commands a premium.



FIG. 4. Another reactor. The mediastinal and mesenteric glands in the intestinal tract were affected.

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FIG. 5. Advanced case of intestinal tuberculosis showing liver, peritoneum and mesentery extensively diseased. The cow, before being slaughtered, was in good condition and the milk was being used for domestic purposes.

price than the average, because of the extra care taken in its production and handling, and it can be recommended as being clean and wholesome.

In conclusion, strive to put your products on the market in such a condition that it will be perfectly wholesome. This can only be done by bearing the following facts in mind:—

Put up good buildings, well drained, lighted, and ventilated. One cannot have too much sunlight and pure air in a stable. At one time the tendency was the other way around as it was claimed that the animals being in semi-darkness were quieter, and the stable being warm, through the heat given off by the animals, the cows gave a greater quantity of milk. But this condition in course of time lowers the vitality of the animals as well as affording splendid opportunity for any disease to develop.

Remove all manure as often as possible, and at least once a day brush or wash down all feed boxes, platforms and drains. If possible, remove manure daily and place on a field. If this cannot be done, do not have the manure pile less than forty feet from the stable.

Spend a little time studying the comforts of the animals, curry-comb and brushing them daily. Not only will they give better returns for

this treatment, but the chances for dirt and bacteria getting into when milking are minimized.

Keep all pails and milk utensils thoroughly clean and when not in use keep them in the open air as much as possible so that the sun's rays reach them.

Do not buy any cows to put with your herd unless they are tested. Should you do so, keep them in a separate building and pasture away from the herd, until such time that they can be tested.

CONTAGIOUS DISEASES (ANIMALS) ACT

Chapter 48, 1897. Amendment Act, Chapter 12, 1911.



AN ACT to prevent the spread of Contagious Diseases among Horses and other Domestic Animals.

His Majesty, by and with the advice and consent of the Legislative Assembly of the Province of British Columbia, enacts as follows:

1. This Act may be cited as the "Contagious Diseases (Animals) Amendment Act, 1911."

2. Where the words following occur in this Act they shall be construed in the manner hereinafter mentioned, unless a contrary intention appears:

"Minister" means The Minister of Finance and Agriculture for the Province of British Columbia.

"Disease" means glanders, farcy, maladie du coit, rinderpest, pneumo-pneumonia contagiosa, anthrax, foot-and-mouth disease, tuberculosis, hog cholera, swine plague, scab, rabies, mange, actinomycosis, Texas fever, and any disease which the Lieutenant Governor in Council from time to time declare to be an infectious or contagious disease for the purpose of this Act.

"Diseased" means infected with disease.

"Justice" means Justice of the Peace.

"Court of Summary Jurisdiction" means two or more Justices sitting in Court or other public place appointed in that behalf, or a Police Stipendiary, or other Magistrate or officer howsoever designated, having by law power to act for any purpose with the authority of two Justices, sitting at a Police Court or other place appointed in that behalf.

"Animal" means horses, mares, mules, foals, geldings, colts, bulls, steers, cows, heifers, steers, calves, sheep, lambs, goats, mares, jacks, asses and swine.

"Inspector" means such person or persons, being a graduate or graduates of a recognised school or schools of Veterinary surgery, as the Lieutenant-Governor in Council shall from time to time appoint; and such person or persons may act as such Inspector or inspectors notwithstanding any provisions of the "British Columbia Veterinary Act, 1907," or any other Act.

Sections 4, 7, 8, 9, 10 and 11 of this Act shall not apply to the case of animals infected with pleuro-pneumonia contagiosa, or tuberculosis.

Treatment of Diseased Animals.

4. (1) Where the owner or other person having charge of an animal has reason to suspect the existence of disease in the said animal, he shall at once take all reasonable precaution to prevent the spread of the disease to other animals, until it has been determined by an Inspector that the animal is free from disease.

(2) Where it appears to any person that any animal is diseased, he shall forthwith notify an Inspector having jurisdiction in the locality, by transmitting to him a declaration made before some Justice of the Peace, authorized to receive affidavits that he has reason to believe that the animal is diseased, and the Inspector, if in his opinion there is reason to believe that the cause thereof, shall forthwith, make an inspection and report his findings in writing to the Minister.

(3) Where for any good and sufficient reason an Inspector is unable to make any such inspection, he may call in the services of a veterinary surgeon, who shall act in his place and stead in making such an inspection, and he shall forthwith report his opinions in writing to the Inspector. The term "Inspector," wherever employed in this Act, shall in proper cases include such veterinary surgeon.

(4) Any person who maliciously and without reasonable and lawful cause gives the notice mentioned in this section shall be liable to a fine of not less than ten dollars, and not more than fifty dollars.

5. Where it appears to any Inspector that any animal is diseased, he shall at once notify the owner or other person in charge of such animal, and shall cause the animal to be safely kept where it will not be brought into contact with, or be in danger of transmitting the disease to, other animals until the case shall be fully disposed of under this Act, and the owner of the diseased animal shall consent in writing to the destruction of the same, in which event the Inspector shall cause the diseased animal to be forthwith destroyed. 1891, c. 6, s. 3.

6. All notices under this Act shall be in writing or print, or partly in writing and partly in print. 1891, c. 6, s. 4.

7. The several officers and persons named as Inspectors under this Act shall perform their duties in the District or place where appointed, and the Lieutenant-Governor in Council, and any Inspector shall have power to enter in or upon any premises in the performance of any duty laid upon him by this Act, or any regulation made under the provisions of this Act, and may call upon any constable or other person to aid him in so doing, and may, in default of so doing, in executing any action taken under this Act, or any regulation made under this Act. 1891, c. 6, s. 5.

8. (1) After the owner or other person in charge has received notice from an Inspector that an animal is diseased, or has been subject to contagion or infection, it shall be unlawful to turn out, drive, or lead the animal, or to cause it to be turned out, driven or led through, or to any place where it may be brought into contact with or be in danger of transmitting disease to other animals, or to expose for sale, or to sell the diseased animal until it has been determined by a Court of Summary

dation, as hereafter provided, that the animal to which the notice relates is free from disease.

(2) The Inspector upon satisfying himself that an animal is diseased, may at once issue his order to a constable directing him to seize and detain such animal and cause the same to be kept in some place where it will not be brought into contact with, or be in danger of transmitting the disease to, other animals, until the case has been determined by the Court, or may himself so seize and detain such animal. 1891, c. 6, s. 6.

9. Any Justice on receiving from any Inspector a notice or report stating that an animal is diseased, shall forthwith issue a summons directed to the owner or other person in charge of the animal, requiring him to appear before a Court of Summary Jurisdiction, at a time and place to be specified in such summons, to show cause why such animal should not be destroyed, or otherwise dealt with as the Court shall deem fit. 1891, c. 6, s. 7.

(2) The proceedings on such notice and summons shall be under the "Summary Convictions Act." 1891, c. 6, s. 8.

10. In case it is proved to the Court of Summary Jurisdiction that the animal in respect of which the summons was issued is diseased, the Court shall give an order to the Inspector for the immediate isolating or killing of the animal or animals so diseased, and for the burying or burning of the carcass (describing the same according to the tenor of the description given in the notice or report, and in the evidence), and in default thereof may impose a fine not exceeding fifty dollars, and a further sum of ten dollars for every twelve hours thereafter until the order be complied with. 1891, c. 6, s. 9.

11. (1) Every person having in his possession or under his charge any animal which is or appears to be diseased, but respecting which no notice has been given as aforesaid, shall, as far as practicable, keep such animal separate from other animals not so diseased, and shall, with all practicable speed, give notice to the Inspector of the existence, or supposed existence of the disease.

(2) Any Inspector shall, on receipt of such notice, with all practicable speed, cause inspection to be made of the said animal, and if the disease appears to exist shall forthwith notify the person in possession or charge of the animal and a Justice, as directed in other cases. 1891, c. 6, s. 10.

12. No owner or other person in charge thereof shall turn out, lead, or drive any animal knowing such animal to have been kept in the same stable, or other place, with any diseased animal, or otherwise exposed to contagion or infection, in, upon, or through any place, without a licence given an Inspector first had and obtained, or without other order from the Court in that behalf. 1891, c. 6, s. 11.

Pleuro-pneumonia contagiosa and Tuberculosis.

13. The following ten sections of this Act shall apply to and govern cases of pleuro-pneumonia contagiosa and tuberculosis.

14. The Inspector shall regularly inspect all dairies and dairy premises maintained for the supply of milk to the public, and all cows from which

such milk is taken, and shall on each inspection give a certificate showing the date of the inspection and the condition of the premises inspected, which certificate or a summary thereof published in the British Columbia Gazette.

15. The standard for dairies and herds upon which grades given shall be—

(a) Dairy stables shall have sufficient ventilation to keep them at all times, providing not less than eight hundred cubic feet of air to each animal; not less than four square feet of lighting to each animal and lighting so provided that the sunlight may reach all parts of the stable some time during the day.

(b) Material used in the construction of the gutter and mangers shall be of concrete or good quality of wood. Floors and gutters of the stable shall be water tight, and the drainage of every cow shed shall be arranged that all liquid matter which may fall or be cast upon the floor shall be conveyed by a suitable open channel to a drain inlet situated in the stable at a proper distance from any door or window of such cow shed to some other suitable place of disposal which is so situated. There shall be no inlet or drain of such cow shed within such cow shed.

(c) There shall be a supply of pure water maintained at all times sufficient for all such purposes as may from time to time be necessary. The receptacle which may be provided for such water shall be emptied and thoroughly cleansed from time to time, as often as necessary to prevent the pollution of any water that may be required, and where such receptacle is used for the storage only of water it shall be properly covered and ventilated and so placed as to be readily accessible.

(d) When the cow-stalls are constructed so that the cow is in the centre of the stable, the gutter shall not be less than four feet from the wall; and where there is a double row of stalls, the mangers shall be less than seven feet apart.

(e) The stables shall be kept clean at all times and cleaned at least twice every year.

(f) Stable, if in basement of barn, shall have perfectly tight roof and adequate system of ventilation, and the ceiling shall not be less than nine feet high.

(g) Cows shall be cleaned before each milking and kept clean. Feeding of hay, straw, or any roughage shall be done at least half an hour before milking, or only after all the milk is removed from stable. All milk shall be removed from stable or barn as each cow is milked. All litter shall be done in a cleanly manner. All dust shall be avoided before or during milking.

(h) Manure shall be removed at least once a day, and if not removed at all the time, manure shall be removed from stable twice a day. Manure or litter shall be removed to a distance of not less than five feet from stable.

(i) Cows shall be free from tuberculosis and other diseases. All cows shall be tuberculin-tested twice every year, and if after the third

(in test, from the time the last case of tuberculosis is found, there are no reactors to the test, once a year may be deemed sufficient for the animals to be tuberculin-tested. This, however, to be left to the discretion of the Inspector in charge.

(j) Cows shall be cleaned after calving, and shall be free from any equivalent discharge emanating from the vagina.

(k) Milk shall not be offered for sale for three weeks before calving or until the fourth day after calving.

(l) The floors of the milk house shall be constructed of concrete or dressed matched lumber. If wood material is used in construction of floor, it shall be treated with some material to prevent absorption of liquids. The junction of the wall and floor shall be water tight.

(m) The floor shall be sloped and a gutter provided and attached to open drain outside the building; and all wash water or waste shall be carried not less than one hundred feet from the milk house. No inlet to any drain of such dairy shall be within such dairy.

(n) The milk-house shall be provided with sufficient light and ventilation so that the dairy may be kept sweet at all times.

(o) Dairy utensils to be free from rust and all seams or joints to be tight. All utensils shall be cleansed and scalded after being used each time, and shall be aired and kept free from dust. Utensils to be rinsed with sterilised water immediately before being used again for milking. The use of the small-top pail to be recommended.

(p) Screen doors or other suitable appliances to be provided to keep flies from dairy utensils and the dairy.

(q) Milk waggon or conveyance shall be kept clean and sweet at all times.

Grade A.—Premises found to be in a sanitary condition within the meaning of the conditions as set forth in the above standard, and the herd has been tested once every six months for tuberculosis and has been found free from that disease:

Grade B.—Premises do not strictly conform to the conditions as set forth in the above standard, and the herd has been tested once a year for tuberculosis and has been found free from that disease.

Grade C.—Premises that conform with conditions as set forth in the above standard, but the herd has not been tested for tuberculosis.

Grade D.—Premises that do not comply with the conditions as set forth in the above standard, and the herd has not been tested for tuberculosis.

16. Persons engaged in the business of buying and selling milk or cream or its products from or to other persons shall state the grade of the dairy from which such milk, cream, or its products were obtained, or label such milk, cream, or its products with the grade of the dairies and herds obtained by the persons from whom such milk, cream, or its products were purchased or are being offered for sale. Otherwise, the dairy of the person or persons purchasing and selling such milk shall be graded the same as the dairy of the person or persons from whom such milk is purchased. This section shall only apply to those person or persons

holding a higher grade certificate than the person or persons from whom the milk or cream is purchased.

17. Inspectors may inspect and subject to the tuberculin test cattle affected with tuberculosis or suspected of being so affected which have been in contact with animals so affected or suspected of being so affected, or which have been in any way whatsoever exposed to contagion or infection of the disease of tuberculosis, and for the purpose of making such inspection or test may order any such animals to be confined and detained or isolated:

(a) In every case in which the Inspector applies the tuberculin test, he shall transmit to the Minister a record of the same and of the results.

(b) Every person who knows that an animal is affected with tuberculosis or has reacted to the tuberculin test shall immediately report the same to the nearest Inspector or to the Minister.

18. (1) Where it appears to the Inspector that any animal is infected as aforesaid, he shall at once notify the owner or other person in charge of such animal, who shall, at his own expense, cause the animal to be kept where it will not be brought into contact with or be in danger of transmitting the disease to other animals. Any animal affected with tuberculosis, whether it shows clinical symptoms of the disease or not, which reacts to the tuberculin test without showing such symptoms, shall, on an order signed by an Inspector, be forthwith quarantined or slaughtered, and its carcass shall be disposed of as the Inspector shall prescribe. Such compensation may be paid to the owner of such animal as the Lieutenant Governor in Council deems fit.

(2) All animals reacting to the tuberculin test shall be branded by the Inspector on the right side of the neck with the letters "T R" or other brand or mark as the Minister may from time to time select for that purpose.

(3) In the event of the owner not complying with the conditions pertaining to the quarantining and disposing of animals, as set forth in section 18, clause (1), the owner shall forfeit all claim to compensation.

19. (1) In the event of the owner objecting to the slaughter of an animal which reacts to the tuberculin test, but shows no clinical symptoms of tuberculosis, such animal shall be kept in close quarantine and shall be retested once within six months; such time may be extended where, in the opinion of the Inspector it is necessary to secure a proper test. On failing to desire any further retests shall thereby forfeit all claim to compensation, and such retests may be made at the convenience of the Inspector.

(2) It shall be unlawful to expose for sale or sell milk from any animal in quarantine as in the preceding subsection provided for unless such milk has been raised to and maintained at a temperature of one hundred and fifty-five degrees for at least a period of twenty minutes, nor shall such milk be exposed for sale or sold after a period of eighteen months from the time that such animals have been declared diseased. The Minister may, however, relieve the owner from this prohibition.

20. (1) After the owner or other person in charge of any animal has received notice that such animal is diseased, or has been subject to

tagion or infection, it shall be unlawful to turn out, drive, or lead such animal, or to cause it to be turned out, driven, or led through, or kept in any place where it may be brought into contact with or be in danger of transmitting the disease to other animals, nor shall it be disposed of, without a licence signed by an Inspector.

(2) The Inspector may at once, by himself or his agent, seize and detain any diseased animal, and, pending notice to the owner, cause the same to be kept, at the expense of the owner, in some place where it will not be brought into contact with or be in danger of transmitting the disease to other animals.

21. (1) Every person having in his possession or under his charge any animal which is or appears to be diseased, but respecting which no notice has been given as aforesaid, shall, as far as practicable, keep such animal separate from other animals not so diseased, and shall, with all practicable speed, give notice to the Inspector of the existence or supposed existence of the disease.

(2) Any Inspector shall, on receipt of such notice, with all practicable speed, cause inspection to be made of the said animal, and if the disease appears to exist shall forthwith notify the owner or person in possession or charge of the animal as directed in other cases.

22. Stables, outhouses, or other places or premises where tuberculosis exists shall be thoroughly cleansed and disinfected, and such alteration shall be made to such premises as are deemed necessary or advisable by the Inspector, by and at the expense of the owner or occupier, in a manner satisfactory to the Inspector, subject to an appeal to the Minister.

23. Before any order is made for payment of compensation in any of the cases aforesaid, there must be produced to the Minister a certificate of valuation and slaughter, and certificate of cleaning and disinfection, all signed by the Inspector.

Procedure.

24. Whenever it shall appear proper, the Minister of Agriculture may direct any Inspector, or any suitable person to examine into any alleged outbreak of disease; to cause such scientific investigations to be made with a view to determining the nature and source of the outbreak as under the circumstances are deemed necessary; and to take (in case the investigation shows reasonable ground for so doing) such measures for its suppression or limitation as are provided by this Act, or as may be provided by any regulations to be made under the provisions of this Act. 1861, c. 6, s. 12.

25. The Lieutenant-Governor in Council may from time to time appoint Inspectors and such other officers and persons as may be requisite for the working out of this Act, and may apply or limit their powers to such portions of the Province as may from time to time seem desirable. 1867, c. 6, s. 13.

26. The Lieutenant-Governor in Council may from time to time prohibit the importation into the Province, or any part thereof, or into any particular port or ports thereof, of any animals, either generally or from any place or places named in the Order in Council, for such period as he

may deem necessary, and may from time to time make such regulations as may seem necessary to prevent the importation or spread of diseases as may seem requisite for carrying out the provisions of this Act. Every such regulation shall have the like force and effect as if it had been embodied in this Act. 1891, c. 6, s. 14.

27. The Lieutenant-Governor in Council may direct any expenses which may be necessary for putting this Act into operation to be paid out of the Consolidated Revenue. 1891, c. 6, s. 18.

Evidence.

28. The certificate of an Inspector to the effect that an animal diseased shall for the purposes of this Act be *prima facie* evidence in the Courts of Justice and elsewhere of the matter certified. 1891, c. 6, s. 19.

Offences and Penalties.

29. Every person who refuses to admit any Inspector or other person appointed by such Inspector acting under this Act, or under regulations or orders made in conformity with this Act, to any place within his district where such Inspector has reasonable ground to believe that any animal affected with disease, or other matter or thing exposed to such infection is to be found, shall for every such offence incur a penalty not exceeding fifty dollars. 1891, c. 6, s. 16.

30. Every person who obstructs or impedes an Inspector or other officer or person acting in execution of the provisions of this Act, or any order or regulation made by the Lieutenant-Governor in Council, or the Minister of Agriculture thereunder, and every person who aids or assists him therein, shall for each offence incur a penalty not exceeding one hundred dollars; and the Inspector or other officer or person may apprehend the offender and take him forthwith before a Justice to be dealt with according to law. 1891, c. 6, s. 17.

31. For the purposes of proceedings under this Act every offence against this Act shall be deemed to have been committed, and every complaint under this Act shall be deemed to have arisen, either at the place in which the same actually was committed or arose, or in any place in which the person charged or complained against happens to be. 1891, c. 6, s. 19.

32. Any person violating any of the provisions herein contained respecting which no express penalty is provided herein, shall be guilty of an offence under this Act, and shall on conviction forfeit and pay a sum not exceeding fifty dollars for each offence. 1891, c. 6, s. 20.

33. Every penalty imposed by this Act shall be recoverable with costs before any Justice of the Peace having jurisdiction or any Magistrate, or the powers of two Justices under the "Summary Convictions Act." 1891, c. 6, s. 21.

34. The Lieutenant-Governor in Council may from time to time make, alter, or rescind rules and regulations for carrying out the provisions of this Act.

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